C. D. MOSHER.

FURNACE.

APPLICATION FILED OCT. 20, 1919. RENEWED APR. 8, 1922.

1,420,441.

Patented June 20, 1922.

4 SHEETS—SHEET 1.

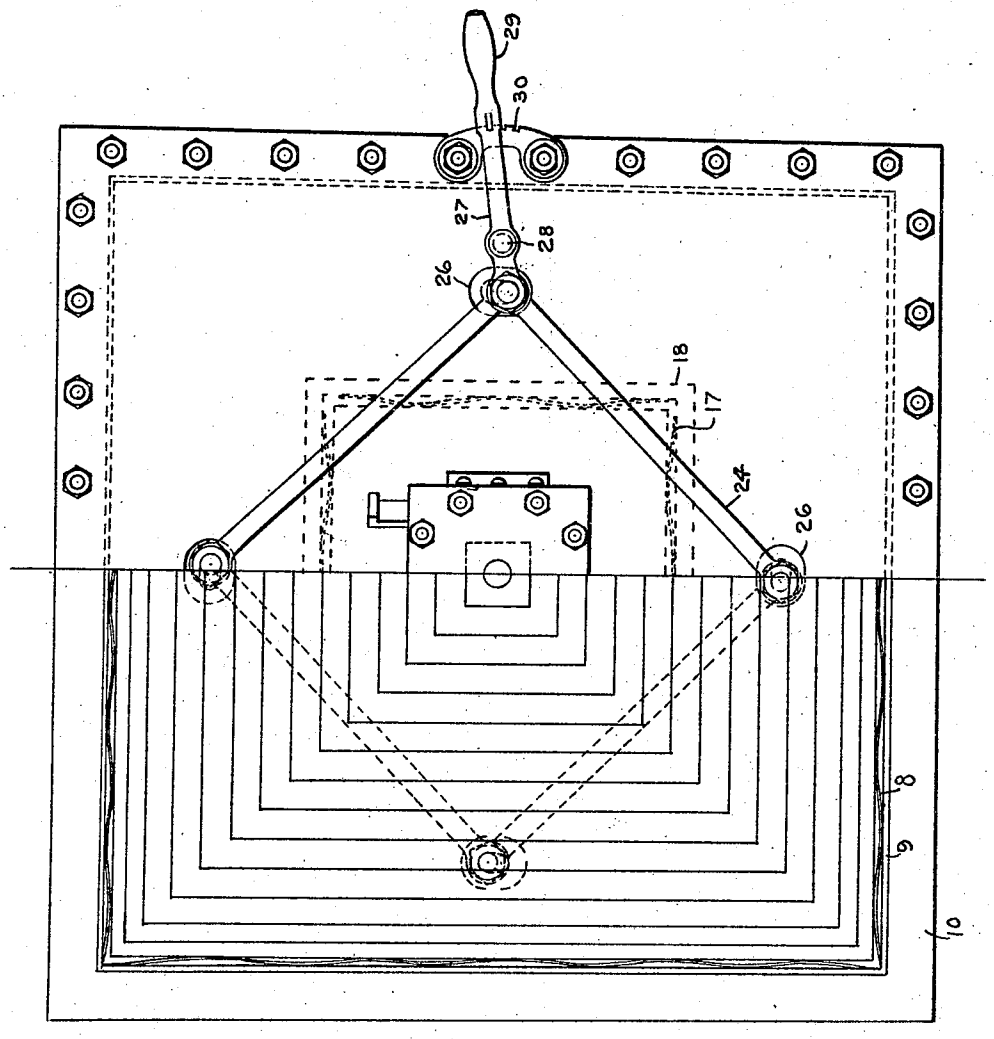


FIG. 1

INVENTOR

Charles D. Mosher.

BY Thompson & Hall

ATTORNEY

C. D. MOSHER.

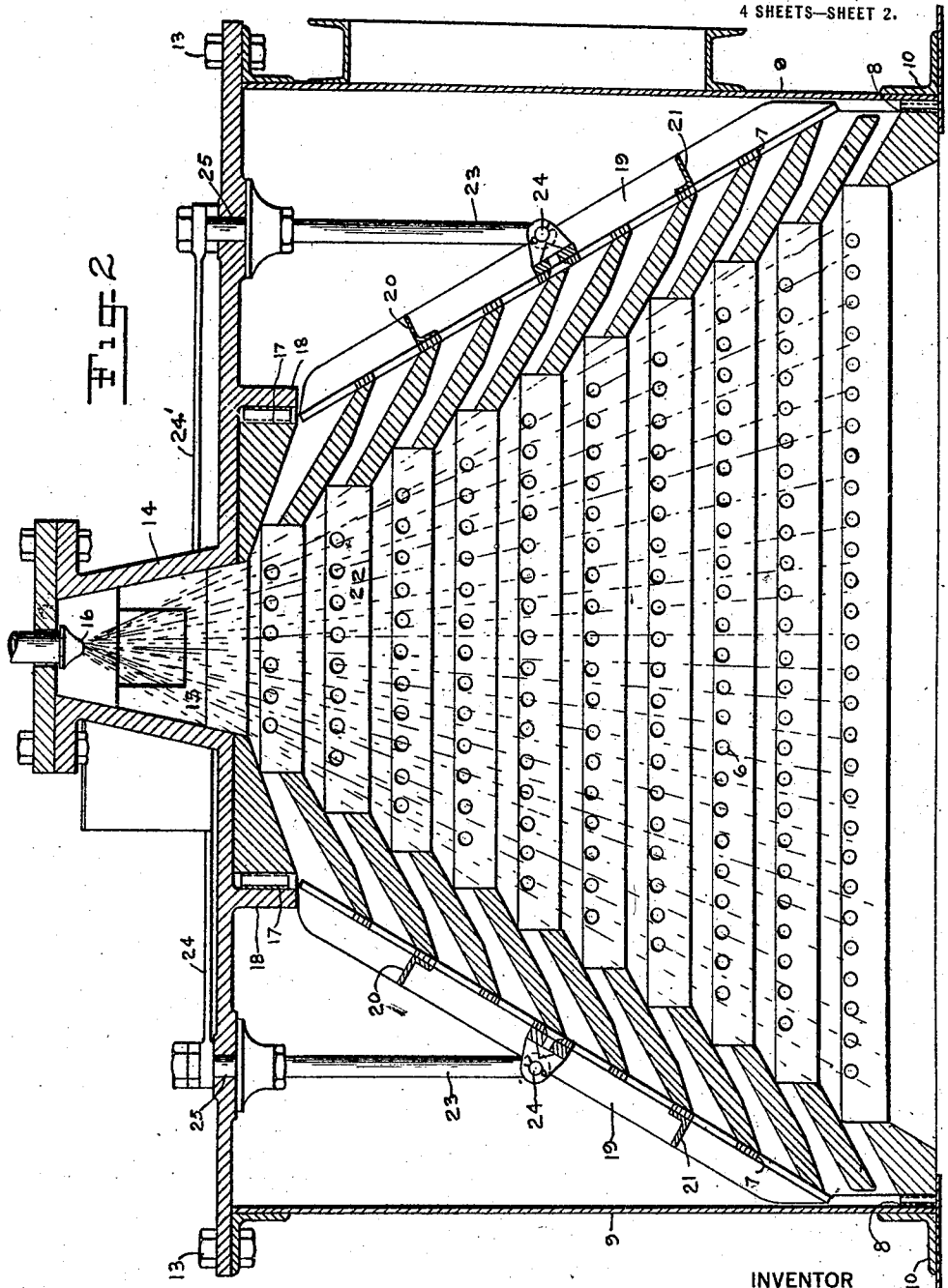
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4 SHEETS—SHEET 2.

FIG. 2



INVENTOR

Charles D. Mosher.

BY Thompson & Hall

ATTORNEY

C. D. MOSHER.

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4 SHEETS—SHEET 3.

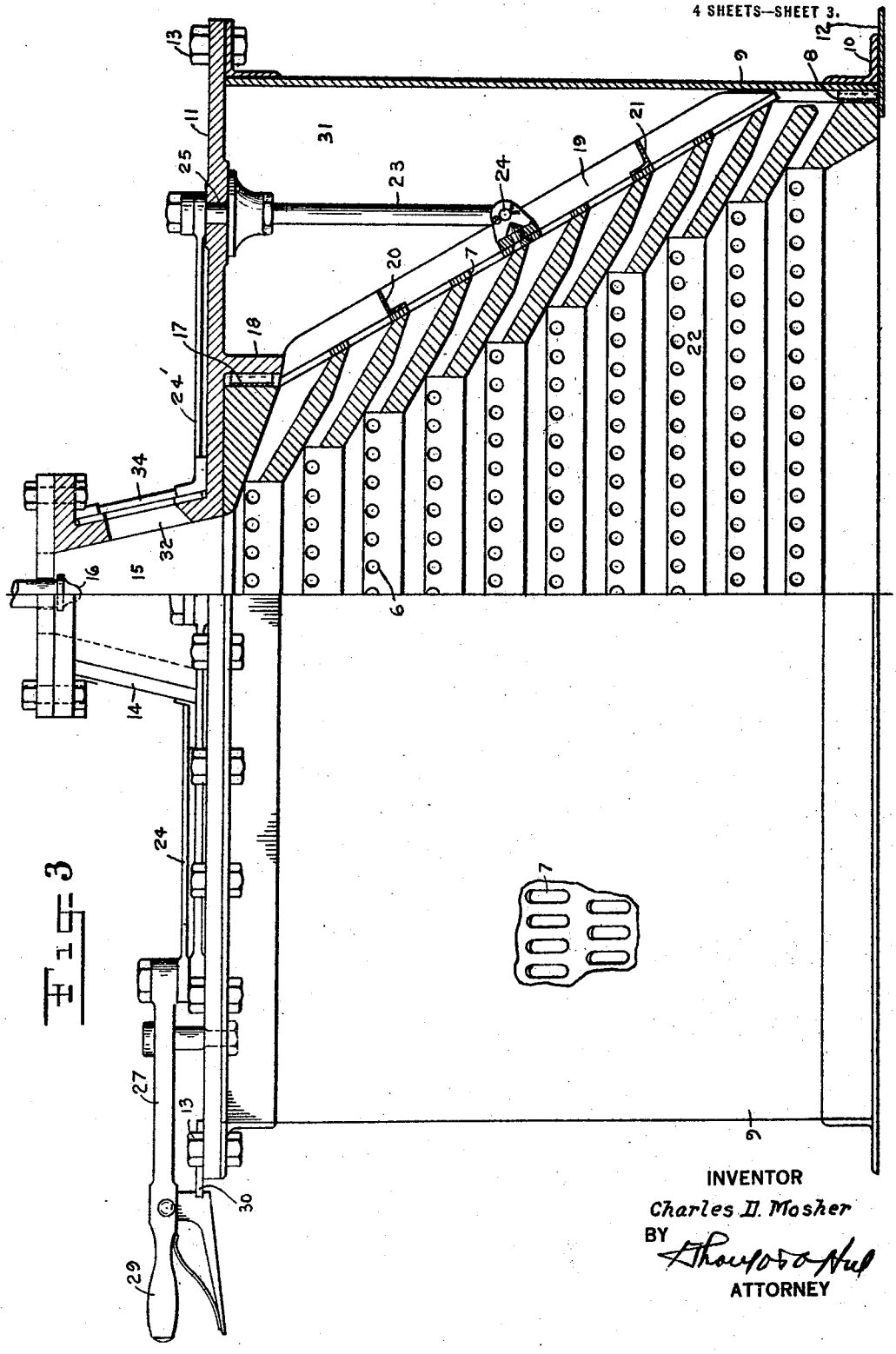


FIG. 3

INVENTOR

Charles D. Mosher

BY Thompson & Hull

ATTORNEY

C. D. MOSHER.

FURNACE.

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4 SHEETS—SHEET 4.



Fig. 5

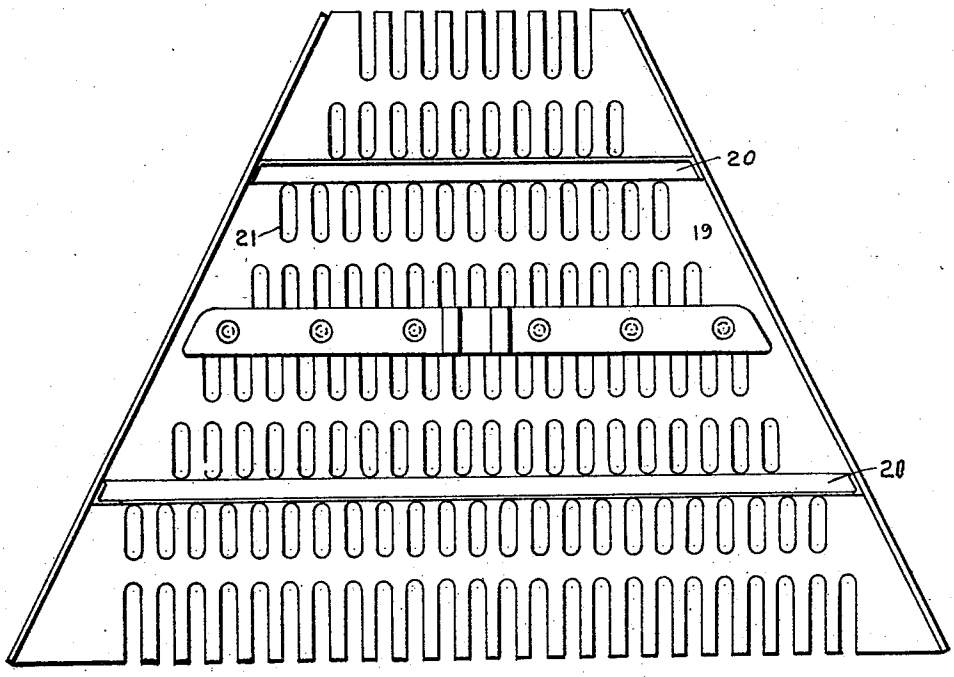


Fig. 4

INVENTOR
Charles D. Mosher
BY
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES D. MOSHER, OF NEW YORK, N. Y.

FURNACE.

1,420,441. Specification of Letters Patent. **Patented June 20, 1922.**

Application filed October 20, 1919, Serial No. 332,034. Renewed April 8, 1922. Serial No. 550,793.

To all whom it may concern:

Be it known that I, CHARLES D. MOSHER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Furnaces, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in combustion chambers for steam boiler and other plants and is illustrated in the accompanying drawings in a form adapting the chamber for use as a supplementary chamber which may be installed in addition to coal or other fuel burning furnaces.

Referring to the drawings, I have illustrated in Fig. 1 in half front and half rear elevation, a suitable form of combustion chamber embodying an application of my invention. Fig. 2 is a longitudinal sectional view of said chamber upon an enlarged scale. Fig. 3 is a similar view showing the application of the damper control mechanism with part broken away illustrating the outside of the fire brick chamber. Fig. 4 is a plan view of a section of the damper, and Fig. 5 a view looking downwardly thereat.

The chamber is preferably formed substantially rectangular as shown in Fig. 1 having tapered or pyramided walls as shown, said walls being preferably formed of incombustible material such as fire brick with triangular grooves or steps, the holes therethrough being of substantially circular formation upon the inside of the wall as indicated by the reference character 6, and of substantially rectangular formation at the outside of the wall or slab as indicated by the reference character 7. These slabs are suitably retained in a suitable resilient or corrugated band or frame such as 8 within the wall 9 of the chamber which in turn is retained by any suitable means such as angle irons 10 to the front 12 of the furnace and provide interior ledges or an inner stepped surface. At the front end of the wall 9 the front of the chamber 11 may be secured by any suitable means such as bolts 13 and the front of the chamber preferably projects forwardly as indicated at 14 providing a chamber 15 through which fuel from the burner 16 may be introduced into the combustion chamber. The small end of the pyramid of slabs is of course preferably retained by a suitable resilient band or framing such as 17 held in place by the lug 18 of the front plate 11 as shown in Fig. 3.

Referring now more particularly to Figs. 4 and 5, it will be observed that suitable perforated plates or dampers 19 may be reinforced by suitable angle irons such as 20 and provided with rectangular openings 21 adapted to register with rectangular openings 7 through the outer surface of the fire brick slabs 22 and these damper plates are preferably pivotally connected by suitable bars such as 23 as indicated at 24, the outer ends of said bars passing through the front plate 11 and being pivotally connected to the levers 24′, the hole 25 through which the bars 23 pass being elongated as indicated at 26 in Fig. 1, and the bars 24 are pivotally connected as shown in Fig. 1 and the lever 27 pivoted at 28 is also pivotally connected to the pivoted levers 24 as shown in Fig. 1 so that by throwing the handle 29 which is adapted to be locked in position in the engagement member 30 the dampers 19 may be shifted longitudinally upon the outer surface of the fire brick slabs of the combustion chamber, thus causing the holes 21 of the dampers to register more or less with the holes 7 through the outer surface of the fire brick. From the foregoing it will be seen that air from the chamber 31 is controlled in its admission to the combustion chamber between the fire brick slabs, thereby insuring a proper mixture and perfect combustion therein.

32 indicates a suitable port or hole through the side of the chamber 15 leading to the combustion chamber, and 34 indicates a suitable slide with a transparent window by which the fuel from the burner 16 and its combustion within the chamber can be observed.

The edge of the fire brick next to the air opening at the side from which the fuel enters projects as a baffle or ledge as shown in front of said air opening to deflect the blast of fuel from entering the air perforation.

From the foregoing it will be understood that various modifications may be made in the construction and arrangement of parts without departing from the spirit of the invention.

I claim:—

1. In a combustion chamber of the class described, a multi-sided tapered chamber having ports therethrough, and in combination therewith a series of simultaneously op-

eratable slides for adjusting the openings of said ports.

2. In a combustion chamber of the class described, a multi-sided tapered chamber having ports therethrough, and in combination therewith a series of simultaneously operatable slides for adjusting the openings of said ports, said means comprising a multi-sided damper and means for operating the dampers on all sides of said chamber equally and simultaneously.

3. A combustion chamber of the class described comprising a four sided pyramid chamber formed of slabs of refractory material having ports therethrough of circular shape upon the inside and rectangular shape upon the outside thereof, a four sided damper upon the outside of said chamber having rectangular openings adapted to register with the rectangular openings of said slabs, and means for longitudinally moving said dampers into and out of register with said slab openings a predetermined degree.

4. In an apparatus of the class described, perforated walls forming an inner pyramidal chamber, the inner surface thereof being of stepped formation and having perforations at the apex of said steps, a casing around said pyramidal chamber forming therewith an outer chamber surrounding said inner chamber, perforated dampers in said outer chamber bearing against the perforated walls of said inner chamber, the openings in said walls registering with the openings in said dampers, said dampers being connected together and operated simultaneously by means of connecting members, and an operating lever.

5. In a combustion chamber of the class described, a tapered chamber having ports therethrough, and in combination therewith a series of simultaneously operable slides for adjusting the openings of said ports, means for discharging fuel into said chamber through the apex thereof and means for discharging air thereinto through said ports in a direction substantially opposed to said fuel.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

CHARLES D. MOSHER.

Witnesses:

DAVID H. DOUGLASS,

ANNA F. DUFFY.